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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,946	02/25/2002	Thomas Gueritault	111701	8746
7590	03/08/2005		EXAMINER	
Oliff & Berridge PO Box 19928 Alexandria, VA 22320			YU, MELANIE J	
			ART UNIT	PAPER NUMBER
			1641	

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,946

Applicant(s)

GUERITAU LT ET AL.

Examiner

Melanie Yu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>01022005</u> . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Status of the Claims

1. Applicant's amendment filed January 6, 2005 has been received. Claims 1-18, 20-26 and 28 are currently amended. Claims 1-28 are pending.

Withdrawn Rejections

2. The rejections of claims 1-28 under 35 U.S.C. 112, second paragraph have been withdrawn in view of Applicant's arguments and amendment. Rejection of claims 1-9, 11-16 and 19-28 under 35 USC 102(b) have been withdrawn in view of Applicant's amendment.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-9, 11-16 and 19-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al. (EP 0695941) in view of Schiltz et al. (US 5,300,457).

Besemer et al. teach a biochip comprising: an active face being rectangular or square (Fig. 1b, biochip 145 is a square) and comprising an active surface onto which are distributed and bound a plurality of ligands used for the analysis wherein the ligands are nucleic acids (Fig. 1b; col. 5, lines 41-47; col. 4, lines 8-18) and a peripheral zone; at least one face opposite to the active face; and a transverse peripheral strip having an edge parallel to the transverse strip (col. 6, lines 46-48) connecting the active and opposite faces and comprising several sides (Fig. 27a, window, 2741 is parallel to the edge of the biochip 2790; Fig. 27b, edge of biochip 2790 parallel to edge of window 2741 meets 2705); a container (Fig. 27b attachment 2791 on both sides of active face 2795, col. 17, lines 10-20) and an attachment means (Fig. 27b; active face 2795

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exposed to reaction chamber **2710** and window frame **2741**) wherein the container and the biochip delimit a reaction compartment (Fig. 27b, **2710**; col. 7, lines 18-29). Besemer et al. fail to teach an attachment means placed on opposite lateral sides of the active face of the biochip and connecting the transverse peripheral strip of the biochip, excluding any other part or face.

Schiltz et al. teach an attachment means placed on opposite lateral sides of a face of a chip and connecting the transverse peripheral strip of the chip, excluding any other part, face or surface of the chip, to the container, completely exposing the peripheral zone of the active face of the chip and the chip being in contact with the substrate only via the attachment means (col. 4, lines 8-28), in order to reduce distances between components and miniaturize printed circuits.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the biochip of Besemer et al., attachment means as taught by Schiltz et al., in order to increase placement accuracy of the biochip and reduce misalignment of the biochip to the container.

Regarding claims 2, 5, and 7, Shiltz et al. teach a substrate having a window through which the chip is attached via attachment means placed on opposite lateral sides of the chip (housing; col. 3, line 52-col. 4, line 28; col. 5, lines 41-50) and the substrate having a transverse profile substantially identical to that of the support of the chip (substrate, 3, substantially identical transverse profile to chip support, 1a, Fig. 5). Shiltz et al. also teach the chip surface merged with the substrate (Fig. 5, 1a merges with 3), which would cause the active face of the biochip of Besemer et al. to merge with the container.

With respect to claims 6, 8, 9, 11-13, and 20, Besemer et al. teach the attachment means being an adhesive cured by ultraviolet radiation (col. 11, lines 34-35) extending along the entire

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transverse strip and connecting two opposite zones of the transverse strip to the container and the container having a beveled shape at the level of the window to allow a surplus of adhesive to be stored without it overflowing onto the peripheral zone of the biochip (col. 8, lines 22-27; col. 9, lines 18-31). Besemer et al. also teach a concavity present on all or part of the surroundings of the window of the container (col. 15, lines 1-22 and 30-40).

With respect to claims 15 and 16, Besemer et al. teach the reaction compartment arranged so as to bring a liquid medium, subjected to the analysis, and the active surface of the biochip into contact (Fig. 27b, fluid flows into reaction compartment **2710** and subjects the liquid to analysis on the active surface **2795**; col. 18, lines 21-33). Besemer et al. also teach attachment means ensuring that the reaction compartment is leak tight with respect to the outside (col. 15, lines 35-40; col. 16, lines 6-20).

With respect to claims 21-23, Shiltz et al. teach an attachment means comprising means that are flexible at the level of the window of the container, and exert a pressure on the transverse strip of the biochip (col. 4, lines 20-28; pressure exists because adhesive holds the chip in place). Besemer et al. teach an intermediate component inclined relative to the opposite face of the biochip and an end component substantially perpendicular to said opposite face, said end component exerting a pressure on the transverse strip of the biochip (col. 16, lines 6-20). Besemer et al. also teach an attachment comprising means that are flexible and comprise claws having a substantially triangular cross-section (Fig. 20a and b, **2015**; col. 15, lines 41-56).

With respect to claims 24-28, Shiltz et al. teach a liquid adhesive seal distributed between the transverse strip of the chip and the substrate and cured by ultraviolet radiation (col. 4, lines 20-24) with the biochip positioned relative to the container so as to place the transverse strip

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opposite the frame of the window of the container (Fig. 5, transverse strip, edge of **9**, is opposite the window, edge of **3**, and meets at **2b**). Besemer et al. teach maintaining the positioning of the biochip by applying a vacuum (col. 12, lines 2-10), positioning a mask between the biochip and the ultraviolet radiation in order to protect the ligands in the active surface (col. 12, lines 18-21), and applying ultraviolet radiation to the adhesive seal on at least one of the faces of the analytical device (col. 12, lines 22-29).

With respect to claim 10, Besemer et al. in view of Schiltz et al. fail to specifically recite the dimension of the transverse strip being between 2 mm and 0.05 mm. With respect to claims 17 and 18, Besemer et al. teach the active surface area of the biochip being exposed to a reaction compartment, and being smaller than the cross-sectional area of the reaction compartment, 217 mm² (col. 7, line 57; Fig. 27b, length of the active surface **2795** is smaller than the length of the cavity **2710**), but fail to teach the specific limitations of an active surface area less than 100 mm² and the active surface of the biochip representing at least 75% of the active face of the biochip. However, it would have been obvious to one having ordinary skill in the art to fabricate the biochip of Besemer et al. within a particular dimension in order to optimize the performance of the biochip since it has been held that where general conditions of the claim are disclosed in the prior art, discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

It has long been settled to be no more than routine experimentation for one of ordinary skill in the art to discover an optimum value for a result effective variable. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum of workable ranges by routine experimentation” Application of Aller, 220 F.2d 454, 456, 105

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USPQ 233, 235-236 (C.C.P.A. 1955). “No invention is involved in discovering optimum ranges of a process by routine experimentation.” Id. at 458, 105 USPQ at 236-237. The “discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art.” Since applicant has not disclosed that the specific limitations recited in instant claim 10, 16, and 17 are for any particular purpose or solve any stated problem, and the prior art teaches that the thickness of the wafer used for the biochip can vary depending on the composition (col.6, lines 46-48), and the active surface of the biochip is smaller than the area of the cavity, 217 mm² (Fig. 27b, length of the active surface **2795** is smaller than the length of the cavity **2710**), and the prior art allows for chips of various sizes to be mated to the container (col. 7, line 57; col. 17, lines 21-26), absent unexpected results, it would have been obvious for one of ordinary skill to discover the optimum workable ranges of the methods disclosed by the prior art by normal optimization procedures known in the art of designing devices for analysis of analyte.

Response to Arguments

4. Applicant's arguments and amendments, see pages 13-14, filed January 6, 2005, with respect to the rejection(s) of claim(s) 1-9, 11-16 and 19-28 under 35 USC 102(b) and rejection of claims 10, 17 and 18 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the new limitations of: the biochip in contact with the container solely via an attachment means in claim 1 and the attachment means that connects the biochip to the container through the window as recited in claim 2. While Besemer et al. does not disclose adhesive being the only contact between the container and the biochip, this limitation is

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provided by Schiltz et al., which would have been an obvious attachment to use in the container Besemer et al., in order to increase the accuracy when mounting the biochip.

Conclusion

No claims are allowed.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Yu whose telephone number is (571) 272-2933. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Melanie Yu
Patent Examiner
Art Unit 1641



LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2000

03/04/05